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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/770,234	01/29/2001	Takashi Nitta	Q61815	5815
7590 11/17/2004			EXAMINER	
SUGHRUE, MION, ZINN, MACPEAK & SEAS, PLLC			QIN, YIXING	
2100 PENNSYLVANIA AVENUE, N.W.			ART UNIT	
WASHINGTON, DC 20037-3213			PAPER NUMBER	
			2622	

DATE MAILED: 11/17/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/770,234

Applicant(s)

NITTA, TAKASHI

Examiner

Yixing Qin

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
 - If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
 - If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
 - Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 29 January 2001.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-24 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-24 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 29 January 2001 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| Paper No(s)/Mail Date <u>31 July 2003</u> . | 6) <input type="checkbox"/> Other: _____ |

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 1-24 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Regarding the claims, the limitation of claims 1,7,13,19-24 beginning with “a feature amount acquisition” includes the statement “the obtained statistical calculation result.” It is unclear whether this result is the result from the third limitation of the claim (‘statistical calculation for **thumbnail** data’ , lines 11-12 of claim 1) or the result from the fourth limitation of the claim (‘statistical calculation for the **sampled** data’).

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

I. Claims 1-18 are rejected under 35 U.S.C. 103(a) as being unpatentable over Yoshikawa (U.S. Patent No. 6,597,471) in view of Greenly (U.S. Patent No. 3,496,543).

The Yoshikawa reference discloses the printing of image data (in FlashPix or FPX format) in various resolutions.

The Greenly reference discloses a data processing system to distinguish between text and image data.

1. Claims 1, 7 and 13

The limitations are:

- **a thumbnail presence/absence judging unit which judges whether said image data have thumbnail data in addition to an original image data**
- **a thumbnail statistical calculation unit which acquires thumbnail data from said image data and performs statistical calculation for the thumbnail data**
- **a sampling and statistical calculation unit which samples said original image data and performs statistical calculation for the sampled data**
- **a precision selecting unit which selects a level of precision required for said feature amount**
- **a statistical calculation selecting unit which selects either said thumbnail statistical calculation unit or said sampling and statistical calculation unit by using the result of selection by said precision selecting unit and the result of judgment by said thumbnail presence/absence judging unit**
- **and a feature amount acquisition unit which acquires a feature amount characterizing said original image data by using the obtained statistical calculation result.**

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Regarding claim 1, Yoshikawa discloses :

- in Figs. 8 and 10 and column 6, lines 8-11 the idea of “subimages.” “Image data that has been layered at different resolutions and the images of the resolutions are called Subimages...” From Fig. 10, a “subimage” can be interpreted as a **thumbnail** because it is a smaller sized reproduction of an original image data.

Furthermore, Yoshikawa discloses in Fig 5A (step s530) and column 12, lines 47-50, that the “...operating system 402 in step S502, opens the FPX file, and examines the number of subimages in the FPX file...” Although it is not explicitly **a thumbnail presence/absence judging unit which judges whether said image data have thumbnail data in addition to an original image data**, one can still use this step in determining thumbnail data if the number of subimages (“thumbnails”) is determined to be more than 0.

In addition, in Fig.8 and Fig. 9 and in column 6, lines 10-14, Yoshikawa discloses that “[f]or each resolution image (subimage)...a subimage header and the image data is stored in Subimage data.” The subimage data can be interpreted as **thumbnail data**.

Yoshikawa fails to explicitly disclose that there is any thumbnail or image statistical calculation unit used in the determination of which image to print.

The secondary reference, Greenly discloses:

- in Fig. 1, and column 2, line 28, a “text reader 10...” Furthermore, on column 2, lines that “...to prevent erroneous ‘recognition’ of characters other than those

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contained in the reader memory, an error count threshold is provided.” Also, in Fig. 1 (item 16) column 2, lines 70 – 72, Greenly discloses that his invention has a “...device for making the reject tally [of unrecognized characters] and decision as to whether or not the reject rate is excessive...”

Furthermore, in column 3, lines 45-49, that “[w]hen the reader encounters a predetermined proportion of unrecognizable characters, reject rate computer 16 disables readout from the text reader by inhibiting buffer 18 and enables copying device 24.”

This method and apparatus as disclosed by Greenly indicates that images read into a system are scanned for text data using the text reader 10 and the reject rate computer (Fig. 1 item 16) (“**a statistical calculation unit**” or “**a statistical selecting unit**”). Furthermore, the reject rate computer serves to choose between copying the image or further processing it if indeed there is enough recognized text in the image (“**precision selecting unit which selects a level of precision required for said feature amount**”).

Although Greenly is not using two separate units for calculation of statistics for thumbnail and original image data, it is clear that one skilled in the art can simply duplicate the text reader and reject computer combination to obtain statistical information about two images (i.e. an original and a thumbnail) at a time.

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Furthermore, Greenly discloses in column 3, lines 1-9, that "...when the text reader encounters recognizable input data, the output signals...is passed through a buffer 18 to a data processing device 20...[which] may perform any variety of modifications..." This data processing device **"acquires a feature amount characterizing said original image data by using the obtained statistical calculation result."**

Both the Yoshikawa and Greenly references are disclosing techniques in the processing of images. Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to include a form of **"statistical calculation unit,"** as characterized by the text reader and reject computer combination as seen in Greenly, to the subimage (**"thumbnail"**) printing invention as disclosed by Yoshikawa. The motivation would be to enhance the capabilities of an image processing apparatus' decision making process as to which form of an image should be processed and printed. Furthermore, even though Greenly, in part, judges text and graphics, it does teach the concept of making a statistical determination about the data, and based on that determination, decides how the data should be processed.

Please note that the reject rate computer will hereon be interpreted as the (**"a statistical calculation unit" or "the statistical selecting unit"**) because it has a functionality of determining a rejection rate for text data and the selection of what to do with the image data after the rejection rate is determined. Thus, the reject rate

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computer as disclosed by the secondary reference, Greenly, reads on the calculation *as well as* the selecting unit.

Since many of the following claims below address the need for a “statistical calculation or selecting unit” to perform some processing on thumbnail data, please apply the motivation for combining the Yoshikawa and Greenly references in the above paragraph for all claims rejected using the Yoshikawa and Greenly references.

2. Claims 2, 8, and 14

The claim limitation is:

- **statistical calculation selecting unit selects said thumbnail statistical calculation unit when there are said thumbnail data and the level of precision required for said feature amount is not so high and selects said sampling and statistical calculation unit in other cases**

Regarding claim 2, The Yoshikawa reference discloses :

- in Figs. 8 and 10 and column 6, lines 8-11 the idea of “subimages.” “Image data that has been layered at different resolutions and the images of the resolutions are called Subimages...” From Fig. 10, a “subimage” can be interpreted as **thumbnail data** because it is a smaller sized reproduction of an original image data.

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However, the Yoshikawa reference does not disclose any form of statistical calculation units.

The secondary reference Greenly discloses :

In Fig. 1 of Greenly discloses text reader 10 and reject rate computer 16 (as discussed in detail in the claim 1 rejection above) Furthermore, Greenly discloses in column 3, lines 1-9, that "...when the text reader encounters recognizable input data, the output signals...is passed through a buffer 18 to a data processing device 20...[which] may perform any variety of modifications..."

Furthermore, Greenly discloses in column 3, lines 45-49, that "[w]hen the reader encounters a predetermined proportion of unrecognizable characters, reject rate computer 16 disables readout from the text reader by inhibiting buffer 18 and enables copying device 24." The predetermined proportion of unrecognizable characters is a measure of the **level of precision**, and when **is not so high**, the rejection rate computer chooses to copy the image. Otherwise, it sends the image data to a buffer and then to a data processor for further processing. (Fig. 1 of Greenly)

The motivation for combining thumbnail data with statistical calculation is mentioned in claim 1 above.

3. Claims 3, 9 and 15

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The claim limitation is:

- **the precision level of said feature amount matches an image quality required in image correction processing.**

Regarding claim 3, Yoshikawa fails to disclose a measurement of the precision level of an image.

The secondary reference, Greenly disclose:

- a technique for the measurement of the **precision level [of an image that] matches an image quality required**
- in Fig. 1, Greenly discloses both a text reader 10 and reject rate computer 16 (as explained in claim 1 above). Furthermore, on column 2, lines that "...to prevent erroneous 'recognition' of characters other than those contained in the reader memory, an error count threshold is provided." Only when this threshold is not met ("**precision level matches an image quality required...**"), further data processing occurs. In this case the **image quality required** is to have enough characters recognized so that the threshold of error count is not met.

4. Claims 4, 10 and 16

The limitation is:

- **thumbnail data are recorded in a compressed form, and said thumbnail statistical calculation unit develops with respect to compressed thumbnail**

data pixels equivalent to a prescribed number of lines, performs statistical calculation for the developed image data and repeats this sequence until it is finished for all the lines.

Regarding claim 4, Yoshikawa discloses :

- **that thumbnail data are recorded in a compressed form.**

In Fig. 10, and column 7, lines 27-33, that “[t]he image of the highest resolution shown in the diagram is construction by (column x rows) of (CxR). The image of the second highest resolution is constructed by (C/2 x R/2). Subsequently, the number of columns and the number of rows are sequentially reduced ½ at a time and the reducing process is repeated until both of the columns and rows are equal to 64 pixels or less.”

One can see from Fig. 10 of Yoshikawa that the original image can be compressed into different resolutions, and in particular one can see that the C/8 x R/8 image is a compressed version of the C/2 x R/2 and C/4 x R/4 subimages (“**thumbnails**”).

- **that his invention develops with respect to compressed thumbnail data pixels equivalent to a prescribed number of lines**

In Fig. 14 and column 16, lines 43-54 of Yoshikawa the initial steps of printing an FPX image from memory. In particular, on lines 50-54, Yoshikawa discloses that “...the counter to count the number of pixels in the width direction is properly initialized each time the line to be outputted is updated.” Yoshikawa is disclosing the printing of a

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subimage ("**thumbnail**") through the counting of pixels, meaning that there are **data pixels** being developed with respect to each line of the subimage.

However, as mentioned before, Yoshikawa does not disclose any means for statistical calculation.

The secondary reference, Greenly discloses

In Fig. 1 of Greenly, text reader 10 and reject rate computer 16 ("**statistical calculation unit**" - as discussed in detail in the claim 1 rejection above). The role of the reject rate computer is to perform statistical calculation on whether read image data is text or not and performs a predetermined function depending on the calculated rejection rate. It does this until the whole input image is read (i.e. "**finished for all the lines**").

The motivation for combining Yoshikawa's disclosure of subimage processing and Greenly's disclosure of text threshold testing is mentioned in claim 1 above.

5. Claims 5, 11, and 17

The claim limitations are :

- **thumbnail statistical calculation unit secures a buffer in which at least two units of bit map images each in the smallest developable unit can be recorded**
- **develops the bit map images in succession and performs statistical calculation for the developed bit map images.**

Regarding claim 5, Yoshikawa discloses :

- in Fig. 4 (407) and column 2, lines 28-33, that "...407 the drawer for performing a drawing process in response to the draw command inputted from the draw command generator 405 and generating a bit map image onto a bit map image generation memory." Although Yoshikawa does not disclose a memory ("buffer") that **holds two bit map images in succession**, it is simply a matter of design to hold one or more images in memory. One of ordinary skill in the art would be well aware of the advantage of sequential storage of data in memory.

Again, the Greenly reference discloses a reject rate computer 10 and the motivation for combining the Yoshikawa and Greenly references is stated in the claims 1, 7 and 13 rejections above.

6. Claims 6, 12, and 18

The limitation is:

- **thumbnail statistical calculation unit acquires an image size in advance, and starts statistical calculation after computing and securing a required buffer capacity.**

Regarding claim 6, Yoshikawa discloses:

- that his invention has the ability to **acquires an image size in advance**

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In Fig. 5A, Yoshikawa shows that, depending on the needs of the print purpose (S504), there are three subimages of 300,150 and 75 dpi that can be printed.

II. Claims 19-24 are rejected under 35 U.S.C. 103(a) as being unpatentable over Yoshikawa (U.S. Patent No. 6,597,471) in view of Greenly (U.S. Patent No. 3,496,543), and further in view of Lin et al (U.S. Patent No. 6,016,354).

The Lin et al reference discloses a method and apparatus for the correction of redeye in pictures through the isolation, processing and correction of the eye area in an inputted image.

7. Claims 19, 20 and 21

Regarding claim 19, 20 and 21, all three of these independent claims have two limitations in addition to having the same limitations as independent claims 1, 7 and 13. Thus, please refer to the rejection for claims 1, 7 and 13 above for the rejection the first six limitations of claims 19, 20 and 21. The only additional limitations are:

- **a parameter computing unit/step/function which computes correcting parameters by using said feature amount**
- **an image correcting unit/step/function which subjects said original image data to image correction processing by using the computed correcting parameters.**

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Regarding claims 19, 20 and 21, neither the Yoshikawa nor the Greenly reference discloses any form of image correction units. However, the tertiary reference, Lin et al, discloses in Fig. 1 a masking module 16 and a color-replacing module 18.

Furthermore, in Fig. 4, and column 5, lines 24-29 that “...the masking module 16 (“**parameter computing unit**”) converts the images 41a-41c into a luminance-chrominance representation...[and the] chrominance information...is then used to calculate a threshold value T...” In column 4, lines 34-35, Lin et al discloses that “[t]he threshold value is then applied to each image pixel of the color image...” This threshold value is the **correcting parameter** being calculated from the specific eye area in an inputted image (“**feature amount**”).

Lin et al further discloses in column 8, lines 25-27, that “...the color replacing module (“**image correcting unit**”) 18 is used to replace the red color pixels within the white area that resembles a pupil...” The communication between the masking module and the color replacing module in regards to what pixels to replace is done through the pupil locating module 17.

All three references are in the art of performing image processing. Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to incorporate an image correction method/apparatus as disclosed by Lin et al's redeye correction system to the combination of Yoshikawa's thumbnail printing methods/apparatus and Greenly's statistical analysis method/apparatus. The motivation is to be able to improve the quality of an image or correct unwanted areas in an image before it is printed.

8. Claims 22, 23 and 24

Regarding claim 22, 23 and 24, all three of these independent claims have four additional limitations (the first 3 limitations and the last limitation) to the limitations as seen independent claims 19,20 and 21. Thus, please refer to the rejection for claims 19,20 and 21 above for the rejection the limitations 4-10 of claims 22, 23, and 24. The only additional limitations are:

- **an image data selecting unit/step/function which selects image data from a memory card recording thereon the image data including an original image data in a compressed form**
- **an image quality selecting unit/step/function which selects a quality level of image processing**
- **an image data reading unit/step/function which read said selected image data out of said memory card**
- **executes printing/generating and supplying print data on the basis of the original image data having undergone image correction (claim 22)**

Regarding the above limitations, Yoshikawa discloses :

- in Fig. 5A and column 12 lines 54-56 that “[t]he printer driver 403 obtains the relevant FPX file by searching storage means (not shown) such as a hard disk or the like in the host computer. It is obvious that the image data will have to be stored on some sort of medium, whether it be a hard disk or a removable medium such as a **memory card**.

- in Fig. 8 and column 6, lines 8-11 that “...the image data has been layered at different resolutions...called Subimages...” These subimages are the **compressed form of the original image.**
- in Fig. 5A a flowchart (“**step/function**”) for the selection of the resolution (“**selects a quality level**”) of a subimage to be printed depending on the needs of the user. In column 9, lines 37-40, Yoshikawa discloses that this process takes place in a host computer (“**unit**”)
- As mentioned two paragraphs above, the printer driver 403 obtains FPX data from a storage means. (“**read said selected image data out of said memory card [hard disk]**”)
- in the abstract (lines 2-4) that “...it is an object of the invention to allow a quality of data that is outputted to a printer to be designated as print data corresponding to the image.”

Although Yoshikawa does not explicitly disclose the **generating and supplying print data on the basis of the original image data having undergone image correction**, he does disclose the FPX format can readily display information regarding different versions (subimages) of an image (as shown in Yoshikawa, Fig. 16). Although the subimages are not necessarily corrections of the original FPX image, one can see that the FPX can display information regarding changes to the original image (in this case, downsizing) The tertiary reference, Lin et al, does disclose that an image can undergo image correction.

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As mentioned above in the rejection for claims 19, 20 and 21, since all three references are in the art of performing image processing, it would have been obvious to one of ordinary skill in the art at the time of the invention to incorporate an image correction method/apparatus as disclosed by Lin et al's redeye correction system to the combination of Yoshikawa's thumbnail printing methods/apparatus and Greenly's statistical analysis method/apparatus. The motivation is to be able to improve the quality of an image or correct unwanted areas in an image before it is printed.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Yixing Qin whose telephone number is 703-306-4142. The examiner can normally be reached on M-F 8:00-4:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Edward Coles can be reached on 703-305-4712. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

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YQ

JOSEPH MANOL
PRIMARY EXAM